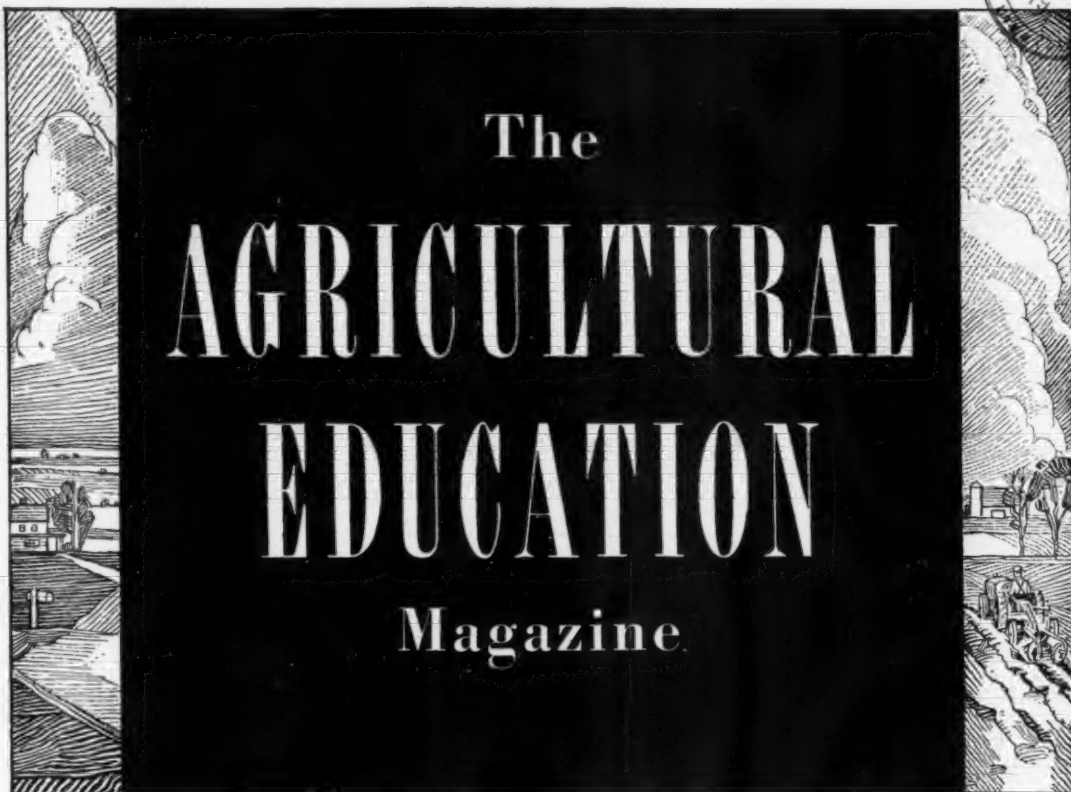


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A system of vocational education in the public schools will help, rather than hinder, general education. It will supply in a concrete, practical way the motivation which, as far as the majority of boys and girls is concerned, has been so far either highly artificial or sadly lacking.—John Dewey.



The Agricultural Education Magazine

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Editorial Comment

Let Us Pause and Consider

A democracy may be defined as an organized state with the minimum of government; with that minimum developed for the welfare of all of the people, and subject to the authority of the majority of the people. The processes of a democratic life emphasize the importance of the individual. With changing concepts of the individual, it is possible for the structure of a democracy to change. This fact makes it imperative that all teachers recognize the fundamental importance of centering education about the individual, with ultimate teaching objectives so defined that their attainment will result in a selectively thinking and a socially adjusted person.

Too often, in our educational procedures, we lose sight of the individual and become subject matter enthusiasts. Subject matter is important as a means to an end and as a partial end, but if our perspective is out of focus, we may see only the narrow field of subject matter, with the individual all too vaguely in the fringe of our teaching consciousness.

Pedagogically, the development of the individual implies a complex process with various intellectual, spiritual, and physical changes. Reducing the whole, in so far as possible, to a statement of the desired result, it may be said that a well-trained individual should be one with initiative, the ability to analyze a situation and think selectively, the ability to make intelligent decisions and act accordingly, and the ability to assume correct social attitudes and act in accordance with these attitudes.

Education, then, should be a process for the development of the abilities, skills, and attitudes of the individual so that he is able to solve the problems of his environment and of his personality, thereby attaining for himself the satisfactions of life and, at the same time, establishing himself as a worthy member of society.

The opportunities in vocational education in agriculture for this type of development of the individual are manifold.

Valid training in vocational agriculture must be largely individual-centered. The teaching content and procedures must be defined in terms of the individual, his abilities, his capacity, his needs, and his opportunities. As we consider the field of training, many questions naturally rise. Are we teaching the individual with a clear perspective and well defined educational objectives, or are we often tending to lose ourselves in subject matter? Do traditional educational procedures still have us by the hand and gleefully lead us and our classes thru mental gyrations? There is a wealth of agricultural material that may be taught. Are we enthusiastically teaching this, hoping that it will apply to the individual taught and that he will make application, or are we breaking the shackles of tradition and effectively teaching the individual in terms of himself and his environmental needs? The challenge is to us.

Then, again, training in vocational agriculture may be extended thru most of the active life of an individual. Are we developing this opportunity as we should? It is possible to divide this long span of potential training into four phases and to state somewhat briefly the primary opportunities for the development of the individual in each of the phases listed.

1. *The Guidance Phase*—Just as happy and satisfied individuals are essential to a stable society, so social and vocational adjustments are essential to happy and satisfied individuals. It is one function of education to help the individual attain these adjustments. The initial steps in this may be developed by the teacher in vocational agriculture in his contacts with farm youth thru the medium of seventh and eighth grade classes in agriculture, thru 4-H Club activities, and thru well organized procedures with the high school boy in the early years of his course.

Elementary surveys of vocations with the individual, the development of his appreciations relative to the vocation of farming, and a preliminary study of his interests, capacity, and opportunity are essential. Are these essentials specifically and sufficiently objectified in our activities as teachers, or are we, in our development of this phase of the training of the individual, just teaching more routine content?

2. *The Guidance and Experiencing Phase*—Vocational and social guidance must be continued with the individual in the

all-day class in vocational agriculture. Added to this, however, is the primary objective in education in vocational agriculture, and that is to develop in the individual greater proficiency in farming. The medium for this latter development is actual participation in farming thru supervised farm practice. Literally, it is organized experiencing. Such experiencing needs to be organized in terms of the individual, his interest, capacity, and opportunity. Do we sincerely believe in this? Are we actually achieving the maximum or are we again groping in a labyrinth of course content and twiddling our thumbs with the boy in his experiencing program? The challenge is to a further breaking of the shackles of traditional teaching and a development of procedures that will give the boy valid, organized farm experience. The further challenge is to develop to a maximum the social adjustment of the boy by utilizing the Future Farmers of America and other worthy youth organizations.

3. *The Establishing Phase*—Every community in the United States has young men and young women not in school, partially trained. Some are employed and others are unemployed. For most of them, their principal concern is to attain security and happiness in life. Among them are many farm youths. Their problem, in large part, is to become established in a vocation, often farming. What are we doing to help them? The opportunity is there as a part of the training in vocational agriculture. Part-time classes, "Young Farmers' " clubs, co-operation with the older farm youth organizations of the agricultural extension service and other organizations give us ample opportunity to assist these individuals. Are we alert enough? Are we developing this training correctly and to a maximum? Are we studying the problem of progressive establishment in farming in each of our communities or are we blandly ignoring or muddling thru this essential phase of the development of the individual?

4. *The Adjusting Phase*—Since the World War, the American farmer has been confronted with changing production, market, economic, and social conditions. The factors contributing to these changes have been many; the resulting problems have been difficult of solution. The result has been that the farmer has had many adjustments to make. Established in a vocation, his primary need is to be able to make intelligent decisions and adjustments under changing conditions. Add to this new information and developments in farm production, marketing, and management, and the sum of the whole defines our opportunity in this phase of the development of the individual. This opportunity can be developed in an organized way thru adult evening classes in agriculture.

In brief, the individual is the keystone of society. Opportunities exist in vocational agriculture for the fullest service to the farm individual and to rural society. We are achieving in part. Let us continue to study these many opportunities, to plan carefully, and to act with vigor.—K. W. Kiltz, Lafayette, Indiana.

A Teacher's Resolution

I AM RESOLVED to like the community in which my lot may be cast; to be a part of the civic and the social life of the people; to be free from local, political and other antagonisms; to meet the parents and patrons openly and frankly; to give and take in my dealings with my fellow teachers; to live free from professional jealousy; to prepare myself adequately on the whole, and from day to day, to the end of solid service; to cherish good books and to seek companionship of thoughtful and serious men and women; to be alive as long as I live; to have faith in children, in God, and in myself; to teach from the great book of life as well as from school books; to be a helper and leader, if possible, without, as well as within the school room.—Oregon News Letter.

I know nothing so pleasant to the mind as the discovery of anything that is at once new and valuable—nothing that so lightens and sweetens toil as the hopeful pursuit of such discovery. And how vast and varied a field is agriculture for such discovery!—Abraham Lincoln.

A. K. GETMAN

Professional

R. W. GREGORY

Contributions of Leading Americans to Agriculture—Stephen Moulton Babcock

HARRY E. BRADFORD, Chairman, Department of Vocational Education,
University of Nebraska

STEPHEN MOULTON BABCOCK was born in Bridgeport, Connecticut, October 22, 1843. These United States were very young then and everything was in the process of change and development. Railroads were extending their lines, crude steamboats were plying on the rivers, canals were being built and long distance wagon roads were under construction. The west was brand new and very wild. At that time the sciences—chemistry, botany, physics, and astronomy—were in their infancy. Some folks thought they were all foolishness and never would amount to anything.

Into this atmosphere, charged with the spirit of need and discovery, Babcock was born. As a boy the record says that he received some very practical training working with his father on the home farm in Oneida County, New York. He graduated from Tufts College in 1866. Then 13 years later at the age of 36 he received his Ph.D. degree from the University of Goettingen. In 1901 he was honored by an LL.D. degree at the hands of Tufts College, and in 1917 received an honorary D.Sc. degree from the University of Wisconsin.

The degrees were no doubt important but the chemistry he studied meant far more to the future of young Stephen Babcock. In Germany he sat and listened to the lectures of the world's greatest chemists. In the laboratories he worked with them attempting to separate plant foods into protein, carbohydrates, minerals, fat, and ash. He saw that they were trying to find the correct amounts of chemicals needed by animals and human beings to supply energy and restore body tissues.

When his studies in Germany were completed the young Dr. Babcock received an appointment as instructor in chemistry at Cornell University. Two years passed by and then he became a research chemist in the New York Experiment Station at Geneva.

From the very beginning of his experience in New York, Babcock showed evidence of marked ability as an inventor and a research worker. After a few years at Geneva he was invited to come to the University of Wisconsin as research chemist. There he lived and worked for 43 years, and there he made

the inventions and discoveries that brought him recognition as one of the great scientists of his time.

The Babcock Test

Stephen Moulton Babcock is known to the world at large mainly thru his invention of the Babcock Test. Wherever dairying exists as an industry the Babcock Test is in daily use. The dairyman may not know the inventor as a man but he does recognize that the Babcock Test measures the value of individual cows in his herd and determines the amount of his check at the creamery.

In the '80's Wisconsin was changing from a wheat to a dairy state. The yields of wheat were growing smaller

no one could determine the percentage of its butterfat or of its water. Some unscrupulous farmers added water to the contents of the milk can. Others who owned cows giving milk rich in butterfat refused to sell their milk to the creameries. So it went from bad to worse. There was no inducement to breed up the herds, and dairying as an industry fell into disrepute.

The need for an instrument to determine the percentage of fat in the milk from different cows was urgent and widely recognized. Wisconsin farmers' associations held meetings to discuss the situation and finally appropriated funds for research purposes.

Professor Henry, Director of the Wisconsin Agricultural Experiment Station, turned to Dr. Babcock, the new chemist, for a solution of the problem. He said, "We must find a way to test milk and determine the percent of fat."

Babcock discovered from a study of the literature that other milk testing methods and apparatus had been devised with little success. They were all too complicated and not adapted for use outside the laboratory. The Soxhlet test came nearest to the solution but it was cumbersome and required considerable apparatus that could only be used by a trained chemist.

To simplify Professor Soxhlet's test and make it perfectly accurate was Babcock's aim. He used bottles with long, narrow necks as containers for the milk and introduced sulphuric acid as a solvent for the fat. The bottles were placed opposite each other in a centrifugal machine and whirled rapidly for about five minutes; then hot water for each bottle, and more whirling. The fat collected in the narrow bottle necks and the percent was read with the aid of a pair of dividers.

The test was simple and it seemed to work. But the milk from one cow, Sylvia, refused to be tested. Finally, after repeated trials and changes in the amounts of acid, Sylvia's milk yielded its correct percent of fat and the Babcock test was ready for public use.

Effects of the Babcock Test on the Dairy Industry

Dr. Babcock made his test so simple and his apparatus so accurate that since it first appeared no change has been made in its essential features. The machine has been improved but the test remains the same.

The effects of the use of the Babcock test were far reaching. Dairying was placed on a scientific basis. Dairy herds



H. E. Bradford



Stephen Moulton Babcock

year by year and farmers were searching for a type of agriculture better suited to their soil and climate. Many Wisconsin farmers were natives of Germany and Switzerland so it was natural for them to turn to the dairy cow as their source of income and food supply. The wheat gave way to pastures and dairy cattle and the crop land was devoted to the production of feed instead of cash crops. These changes were gradual, of course, but within a decade Wisconsin was known as a dairy state.

At first the farmers skimmed the cream and made the butter on the farm. Then came the day of small creameries and cheese factories, and as the industry became commercial the troubles began. Milk was sold by the pound and

increased in number and in the quality of individual cows. The United States, Canada, Australia, New Zealand, South Africa, soon adopted the test as the basis of payment for milk. The financial benefits to dairy farmers and to the dairy industry have been tremendous and can hardly be estimated.

Dr. H. L. Russell, Director of the Wisconsin Experiment Station, wrote the following paragraphs which appeared in the *Dairy Farmer*, September 15, 1919.

"By means of the Babcock test, dairying has been developed from one of the most haphazard of industries to an exact and attractive business enterprise. The Babcock test has been so intimately connected with and largely responsible for the progress in dairying not only in this state but thruout the country and the world, that proficiency in its use has become almost synonymous with better cows, better milk, and better farming.

"It has served as the necessary stimulant to raise dairying from a disliked side line to a profession worthy of the efforts of well-trained men. It has made dairymen honest, has placed dairying on a scientific basis, has promoted factory efficiency and has stimulated the breeding up of productive herds.

"The Babcock test has struck the shackles which bound dairy farmers to past tradition, and has started them on their way to greater prosperity."

The foundation of the dairy industry in Wisconsin was really the manufacture of cheese. In 1858 Hiram Smith began to make cheese on the co-operative plan in Sheboygan County and soon other factories were started in Richland and Fond du Lac Counties. American cheese was the only cheese made in these factories, but within a short time the Swiss, brick, and limburger cheese industry began in Greene County. These last-named methods of cheese making were inaugurated by native Swiss who found the hills of Wisconsin beautiful miniatures of their native hills and valleys.

As the years passed the mixed, common herds of dairy cattle became high-grade or purebred. Alfalfa was introduced. The outdoor haystack passed into oblivion and the large, well-ventilated barn with a silo at hand was seen on nearly every farm. When Babcock published the first edition of his bulletin in 1890 the dairy business took on new life. Creameries could buy and farmers could sell milk with confidence. Watering of milk would no longer pay because creameries paid for the fat, the percent of which was determined by the Babcock test. Creameries and cheese factories were reopened and new ones established. Milk was sold to central stations. New economies were effected and milk production became modern. There began a new day for Wisconsin, and the real cause was the Babcock test.

Other Scientific Contributions

Babcock had a curiosity that led him into all sorts of research projects. He wondered why some things happened and why others didn't happen. He read scientific literature of his day and then began to upset pet theories of men who had jumped at conclusions.

During his student days in Germany

Babcock watched famous chemists as they tried to determine the amounts of carbohydrates, fats, proteins, and minerals needed by animals and human beings. They proposed to make the rations fit the body needs in terms of ounces and pounds. When this new Ph. D. returned to America and began work at Geneva, he was assigned to the job of weighing the rations of dairy cows to determine the amounts of food digested by the animals. Here he found that the feed consumed and the excreta returned contained almost exactly the same percentage of body food. Something was undiscovered and he began to wonder. His figures upset known data on feeding animals but nothing had come of it when Dr. Babcock left Geneva to wear his chemist's apron in a laboratory in Wisconsin.

In Wisconsin Babcock questioned the feeding rations set forth in Professor Henry's book on feeds and feeding. He thought that some plants contained certain unknown and needed chemical compounds while in other plants the same vital compounds were lacking. He wondered and asked for cows for an experiment.

The cows were furnished, at first sparingly but later without reserve, and they were fed in lots of four on wheat, corn, and oats separately. The results are now well known and the chemists are still finding new things. Babcock's associates, young men, carried on year after year and published the facts we now know about nutrition, and plants that contain life-giving elements. Dr. Babcock wrote nothing about these experiments and claimed no credit for a discovery. But he was the inspiration and the brains behind the first discovery of facts that started men like McCollum, Hart, and Steenbock on extended studies in the field of nutrition.

Babcock worked for 43 years in Wisconsin, a dairy state, so it is not surprising that many of his discoveries were in the field of dairy chemistry. Working with H. L. Russell, then a young bacteriologist, he studied to find out what caused cheese to break down, and hit upon a method of curing that has made it possible to produce our finest grades of cheese.

Other Babcock inventions and discoveries are listed below. The far-reaching effects of these devices and methods may be learned from the literature of the dairy industry today.

Babcock's Discoveries

1. Invented a viscometer, still used to measure the viscosity of liquids and to detect the adulteration of oils.
2. Invented gravimetric method of analyzing milk. This is now the standard method of milk analysis in the U. S.
3. Perfected a simple method of determining the size and number of fat globules in milk.
4. Perfected a method to separate casein mechanically from other constituents of milk.
5. Devised the mathematical formula to calculate the cheese to be obtained from milk after a simple analysis.
6. With Dean H. L. Russell, discovered the cause for the diminished consistency of pasteurized milk and devised a method for restoration.
7. Discovered galactase, the digestive ferment in cheese, which immediately

caused a revision in the methods of curing.

Writings of Babcock

Babcock lived to the age of 88 years and did not write a book. No account is given of public addresses, and he wrote only what seemed necessary to describe his research projects. An inspection of Wisconsin Experiment Station reports shows reviews and reports beginning about 1889 and continuing regularly until 1905. All of the reports deal with experiments affecting milk, cream, cheese, and their handling.

Brevity and restraint in writing and speaking for public consumption seem to be characteristic of the man. He left us no philosophy except what other men tell of his private conversations. He wrote only reports of work done and left the interpretation to his associates.

Babcock, the Man

Babcock had many characteristics that endeared him to his associates. Personally he was genial and friendly. His laugh was infectious and frequently heard. He was modest to a fault, always giving credit to others and taking none for himself.

One might expect such a man to be silent and inclined to want to be alone but such was not the case. Even when he was a very old man he loved the company of the youngsters who were cutting their eye teeth as scientists in the laboratory.

Babcock seemed never to grow old. At 63 he worked on the problem of metabolic water. This piece of work is now a classic in the field of plant and animal physiology. It explains how a moth can live on dry clothes and still produce larvae containing 75 percent water. At the age of 87 he was at work on the problem of the constitution of matter.

He was peculiar in some of his habits. The telephone disturbed him, so he had none in his home. In his office he removed the receiver from the hook in order to be free from interruption. When the executive order came to leave the telephone connected he obeyed but afterward forgot to hear the ring. He declined a commercial offer involving a large salary, saying that he was too busy to accept their kind offer. He refused to profit from the Babcock test by taking out a patent. The University of Wisconsin paid him a salary and he wanted the world to have his discovery.

Play was not omitted from Dr. Babcock's daily life. He attended basketball games regularly and liked to talk about the game. His friends smiled when he showed enthusiasm over John L. Sullivan, his favorite pugilist. He learned to drive a car at the age of 78 and toured the state of Wisconsin, driving some 35,000 miles in three years.

What Others Say

On October 19, 1930, at a banquet of the American Country Life Association, Dr. Stephen Moulton Babcock was given the first annual Capper award for distinguished service to American agriculture. The award was in the form of \$5,000 in cash and a gold medal designed by the National Fine

(Continued on page 207)

Graduate Courses in Agricultural Education Available to Teachers of Agriculture in the 1939 Summer Sessions

Editor's Note: Because of the widespread interest in professional improvement by teachers of agriculture expressed annually by attendance at summer schools, we present here a list of professional courses offered in the several states. Many advanced courses in technical agriculture are being offered in the several institutions included in this tabulation and by institutions not mentioned here. These are not included because of limited space available. A number of institutions offer courses in philosophy of vocational education, administration of vocational education and vocational guidance. Courses of this type are not listed unless they are open only to teachers of vocational agriculture and are designed particularly for them. There are, no doubt, other institutions offering graduate work for teachers of agriculture in addition to those listed here, but the information had not been received from them at the time of publication of this summary.

State and Institution ¹	Courses Offered	Instructor	Credit	Duration of Course
ARIZONA: U. of Arizona Tucson	1105 Visual Aids in Teaching Agriculture..... 2168 Methods of Teaching Farm Shop.....	Cline..... Cullison.....	3 sem..... 3 sem.....	June 12-28 June 12-28
COLORADO: Colorado State College Fort Collins	262 Promotional Methods in Vocational Agriculture..... 266 Efficiency in Vocational Agriculture..... 265 Part-Time Classes in Vocational Agriculture..... 162 Supervised Farm Practice..... 164 Advanced Methods in Agricultural Education..... 225 Research Methods in Agricultural Education..... 116 Visual Instruction in Agricultural Education..... 167 F. F. A. Activities..... 268 Conference Leading in Agricultural Education..... 225 Research Methods in Agricultural Education..... 166 Methods in Farm Mechanics.....	Perky..... Davenport..... Clements..... Jeppson..... Gibson..... Nolan..... Aspinwall..... Wimberly..... Lattig..... Bradford..... Schmidt.....	1.75 sem..... 1.75 sem..... 1.75 sem..... 1.75 sem..... 1.75 sem..... 1.75 sem..... 1.75 sem..... 1.75 sem..... 1.75 sem..... 1.75 sem..... 1.75 sem.....	June 19-July 7 June 19-July 7 June 19-July 7 June 19-July 7 June 19-July 7 June 19-July 7 June 19-July 7 July 10-July 29 July 10-July 29 July 10-July 29 July 10-July 29
GEORGIA: University of Georgia Athens	652 Materials and Methods in Teaching Agriculture..... 671 Teaching Agriculture to Adults..... 902 Problems of Training Vocational Teachers..... 904 Supervision of Vocational Teaching..... 471 Teaching Agriculture to Adults (½ course)..... Seminar and Panel on Farm Planning.....	Duncan..... Aderhold..... Wheeler..... Aderhold..... Duncan..... Aderhold & Technical Staff.....	5 quar..... 5 quar..... 5 quar..... 5 quar..... 2½ quar..... 5 quar.....	June 15-July 22 June 15-July 22 June 15-July 22 June 15-July 22 July 1-July 22 July 17-July 22
HAWAII: U. of H., Honolulu	8270 Directed or Supervised Practice in Agriculture..... 8279 Supervision of Vocational Education.....	Anderson..... Anderson.....	2 sem..... 2 sem.....	June 26-Aug. 4 June 26-Aug. 4
ILLINOIS: University of Illinois Urbana	175 High School Program of Agricultural Education..... 177 Planning and Evaluating Community Programs of Agricultural Education..... 178 Seminar in Agricultural Education.....	Hamlin..... Hamlin..... Hamlin.....	5 sem..... 5 sem..... 2½ sem.....	June 19-July 28 June 19-July 28 June 19-July 28
IOWA: Iowa State College Ames	431-A-Special Problems in Agricultural Education..... 590-A-Special Topics in Agricultural Education..... 690-A-Research in Agricultural Education..... 537 Methods of Teaching Adults..... 604 The Secondary School Program of Agricultural Education..... 615 Seminar in Agricultural Education..... 431-A-Special Problems in Agricultural Education..... 590-A-Special Topics in Agricultural Education..... 690-A-Research in Agricultural Education..... 536 Adult Education.....	McClelland..... Sexauer & McClelland..... Sexauer & McClelland..... Sexauer..... McClelland..... McClelland..... McClelland..... Sexauer & McClelland..... Sexauer & McClelland..... Sexauer.....	1-5 quar..... 1-8 quar..... 1-8 quar..... 2 quar..... 2 quar..... 2 quar..... 1-3 quar..... 1-8 quar..... 1-8 quar..... 2 quar.....	June 13-4 or 6 wks. June 13-4 or 6 wks. June 13-4 or 6 wks. June 13-20 June 13-July 20 June 13-July 8 July 20-4 or 6 wks. July 20-Aug. 26 July 20-Aug. 26 July 20-Aug. 26
KANSAS: Kansas State College Manhattan	241 Vocational Education..... 290 Problems in Training Agricultural Judging Teams..... 285 The Project Method in Agricultural Education..... 287 Organization and Conduct of Class Projects..... 291 Community Problems in Vocational Education..... 293 Problems in Evening-School Classes..... 295 Organization Problems in Teaching Farm Mechanics..... 296 Problems in Part-Time Schools and Classes..... 337 Problems in Vocational Education.....	Davidson..... Davidson & others..... Hall..... Hall..... Davidson..... Brown..... Hall..... Brown..... Williams.....	3 sem..... 2 sem..... 2 sem..... 2 sem..... 2 sem..... 2 sem..... 2 sem..... 2 sem..... Arr.....	May 31-July 29 July 3-July 29 July 3-July 29 July 3-July 29 July 3-July 29 July 3-July 29 July 3-July 29 July 3-July 29 July 3-July 29
KENTUCKY: U. of Kentucky Lexington	179 Determining Content in Vocational Agriculture..... 2871 Part-Time Schools..... 280 Method in Teaching Vocational Agriculture..... 287b Selecting Teaching Materials..... 287d Directing Farm Practice..... 179 Determining Content in Vocational Agriculture..... 287c Evening Schools.....	Hammonds & Tabb..... Gregory..... Hammonds..... Armstrong..... Hammonds..... Tabb & Hammonds..... Hammonds.....	3 sem..... 3 sem..... 3 sem..... 3 sem..... 3 sem..... 3 sem..... 3 sem.....	June 12-June 28 June 12-June 28 June 29-July 15 June 29-July 15 July 17-Aug. 2 Aug. 3-Aug. 19 Aug. 3-Aug. 19
LOUISIANA: La. State University University	205 Thesis..... 207 State Administration of Vocational Agriculture..... 280 Method in Teaching Vocational Agriculture..... 214 Future Farmers of America..... 224 Philosophy of Vocational Education..... 226 Advanced Methods in Teaching Vocational Agriculture..... 230 Research in Vocational Education.....	Mondart..... Peterson..... Jackson..... Nolan..... Nolan..... Davenport.....	1½ sem..... 1½ sem..... 1½ sem..... 1½ sem..... 1½ sem..... 1½ sem.....	June 5-Aug. 3 July 10-July 29 July 10-July 29 July 10-July 29 July 10-July 29 July 10-July 29
MARYLAND: U. of Maryland ³ College Park	2018 Principles of Rural and Adult Education..... 2058 Problems in Vocational Agriculture, Related Science, and Shop.....	Cotterman..... Cotterman.....	1 sem..... 1 sem.....	June 26-July 14 June 26-July 14
MASSACHUSETTS: Massachusetts State College, Amherst	103 Problems of Teaching Vocational Agriculture..... 104 Vocational Education, Principles, Policies, Laws..... 183 Advanced Problems of Agricultural Teaching, Research.....	Heald..... Heald..... Heald.....	3 sem..... 3 sem..... Variable.....	July 3-Aug. 11 July 3-Aug. 11 July 3-Aug. 11
MICHIGAN: Michigan State College East Lansing	314 ⁴ Methods of Teaching Farm Shop..... 532 Course Building in Vocational Agriculture..... 533 Part-Time Classes in Agriculture..... 314 ⁴ Methods of Teaching Farm Shop..... 500 Problems of Secondary Agricultural Education.....	Cook..... Deyoe..... Byram..... Cook..... Deyoe.....	3 quar..... 2 quar..... 2 quar..... 3 quar..... 4 quar.....	June 19-July 7 June 19-July 7 June 19-July 7 June 19-July 28 June 19-July 28
MINNESOTA: University Farm St. Paul	137 Course of Study Content in Agriculture..... 232 Research in Agricultural Education..... 237 Adult Education in Agriculture..... 286 Special Problems in Agricultural Education.....	Field, Raine & Harden..... Field & Ekstrom..... Field..... Ekstrom.....	3½ quar..... 3½ quar..... 3½ quar..... 3½ quar.....	June 19-July 28 June 19-July 28 June 19-July 28 June 19-July 28
MISSISSIPPI: Mississippi State College State College	983 Part-Time Instruction for Out-of-School Youth..... 983 Part-Time Instruction for Out-of-School Youth..... 993 Advanced Problems in Teaching Farm Shop..... 943 Teaching Soil Conservation.....	Seoggin..... Wilson..... Snowden..... Martin.....	3 sem..... 3 sem..... 3 sem..... 3 sem.....	June 5-July 7 July 10-Aug. 11 July 10-Aug. 11 July 10-Aug. 11
MISSOURI: University of Missouri Columbia	F195 Special Problems in Vocational Agriculture..... F240 Problems in Agricultural Education..... F250 ⁵ Special Investigations in Agricultural Education..... B271 ⁶ Philosophy of Education.....	Dickinson & Dippold..... Dickinson & Dippold..... Dickinson & Dippold..... Drake.....	1-4 sem..... 1-4 sem..... 1-4 sem..... 2 sem.....	July 10-Aug. 4 July 10-Aug. 4 July 10-Aug. 4 July 10-Aug. 4

Footnotes:

¹Courses in agricultural education were given at the University of Nebraska in 1938. They will be offered in 1940 and in alternate years. Courses without graduate credit are offered at the University of Wisconsin, North Dakota Agricultural College, Alabama Polytechnic Institute, and University of Vermont.

²Graduate credit for minor only.

³Additional courses not offered in 1939 will be available in subsequent summer sessions.

⁴Undergraduate course which carries graduate credit.

⁵All of the courses may be taken for 4 weeks and 2 credits.

⁶For teachers working on research problems.

⁷Intended primarily for teachers of agriculture.

State and Institution ¹	Courses Offered	Instructor	Credit	Duration of Course
NEW HAMPSHIRE: University of N. H. Durham	Philosophy of Vocational Education..... 95 The Secondary School Program in Agriculture..... 96 Farm Shop for the Teacher of Vocational Agriculture.....	Eaton..... Little..... Little.....	3 (6wk.)..... 2 (6wk.)..... 2 (6wk.).....	June 27-Aug. 5 June 27-Aug. 5 June 27-Aug. 5
NEW YORK: Cornell University Ithaca	A134a Special Educ. for Out-of-School Youth and Adults..... A250 Seminar in Agricultural Education..... A267 Vocational Education in the Public Schools..... A277 Vocational Courses of Study in Agriculture.....	Hoskins..... Smith..... Stewart..... Hoskins.....	..... ..... ..... .....	July 3-Aug. 11 July 3-Aug. 11 July 3-Aug. 11 July 3-Aug. 11
N. CAROLINA: N. C. State College of Agriculture Raleigh	416 Problems in Agricultural Teaching..... 420 Agricultural Education Seminar..... 421 Research in Education..... 361 Trends in Teaching Vocational Agriculture..... 362 Course of Study Problems..... 363 Guidance and Individual Instruction.....	Cook..... Cook..... Cook..... Staff..... Staff..... Staff.....	3 quar..... 1 quar..... 3 quar..... 1½ or 3 quar..... 1½ or 3 quar..... 1½ or 3 quar.....	June 12-July 22 June 12-July 22 June 12-July 22 June 12-July 1 June 12-July 1 June 12-July 1
OHIO: Ohio State University Columbus	601 Special Methods of Teaching Vocational Agriculture in Secondary Schools..... 701 Special Problems..... 705 Supervised Practice Program Building..... 803 The Problem Method Applied to Secondary and College Teaching in Agriculture..... 804 State Administration and Supervision of Vocational Agriculture..... 806 Organization and Administration of Teacher-Training for Vocational Agriculture..... 808 Organization and Methods of Conducting Part-Time and Evening Schools..... 809 Research for Teachers of Vocational Agriculture..... 810 Seminar in Agricultural Education.....	Kenestrick..... Staff..... Kenestrick..... Stewart..... Fife..... Stewart..... Hutchison..... Stewart & Fife..... Staff.....	5 quar..... 1-10 quar..... 3 quar..... 5 quar..... 3 quar..... 3 quar..... 3 quar..... 3 quar..... 3-5 quar.....	June 1-July 26 June 1-July 26 June 1-July 26 June 1-July 26 June 1-July 26 June 1-July 26 June 1-July 26 June 1-July 26 June 1-July 26
OKLAHOMA: Okla. Ag. & Mech. Col. Stillwater	503 Program Planning ⁸ 500 Thesis-Research ⁸ 510 Supervised Farm Training ⁸ 513 Promotional Methods ⁸ 472 Seminar, Agricultural Education ⁸	McIntosh..... Staff..... White..... Perky..... Staff.....	3 sem..... 1-6 sem..... 3 sem..... 3 sem..... 2 sem.....	June 5-June 24 June 5-June 24 June 5-June 24 June 5-June 24 June 5-June 24
PENNSYLVANIA: Pa. State College State College	419-A-Visual Aids in Teaching Agriculture..... 502-A-Teaching Vocational Agriculture..... 503-A-Problems in Agricultural Education..... 523-A-F. F. A. Activities..... 525-A-Master's Thesis..... 419-B-Visual Aids in Teaching Agriculture..... 502-B-Teaching Vocational Agriculture..... 503-B-Problems in Agricultural Education..... 509-B-Supervised Farm Practice..... 525-B-Master's Thesis.....	Brunner..... Broyles..... Hall..... Brunner, Ross..... Broyles..... Brunner..... Broyles..... Hall..... Martin & Broyles..... Brunner.....	1½ sem..... 1½ sem..... 1½ sem..... 1½ sem..... 1½ sem..... 1½ sem..... 1½ sem..... 1½ sem..... 1½ sem..... 1½ sem.....	July 3-July 21 July 3-July 21 July 3-July 21 July 3-July 21 July 3-July 21 July 24-Aug. 11 July 24-Aug. 11 July 24-Aug. 11 July 24-Aug. 11 July 24-Aug. 11
SOUTH DAKOTA: S. D. S. C., Brookings	277 ⁹ Curriculum in Vocational Agriculture.....	Bentley.....	3 quar.....	June-July
TENNESSEE: Univ. of Tennessee Knoxville	521 Special Problems in Teaching Vocational Agriculture..... 521 Special Problems in Teaching Vocational Agriculture..... 522 Special Problems in Teaching Vocational Agriculture.....	..... ..... .....	3 quar..... 3 quar..... 3 quar.....	June 12-July 18 July 20-Aug. 10 July 20-Aug. 10
TEXAS: A. & M. Col. of Tex. College Station	501 Advanced Methods in Agricultural Education..... 505 Supervised Practice..... 507 Future Farmer Activities ¹⁰ 508 Promotional Activities in Vocational Agriculture ¹⁰ 509 Part-time Classes ¹⁰ 511 Evening School Problems ¹⁰ 512 Agricultural Outlook Material ¹⁰ 513 Administration and Supervision of Agricultural Education ¹⁰ 514 Research and Thesis Problems ¹⁰	Orehard..... Orehard..... Alexander..... Alexander..... Ross..... Ross..... Alexander..... Ross..... Alexander.....	4 sem..... 4 sem..... 2 sem..... 2 sem..... 2 sem..... 2 sem..... 2 sem..... 2 sem..... 2 sem.....	June 6-July 15 June 6-July 15 June 6-June 27 June 6-June 27 June 6-June 27 June 6-June 27 June 6-June 27 June 6-June 27 June 6-June 27
VIRGINIA: Va. Polytechnic Inst. Blacksburg	511 Methods in Research..... 5x2 Problems in Farm Shop Instruction..... 511 Methods in Research..... 5x2 Problems in Subject Matter..... 5x2 Problems in Student Organizations.....	Magill..... Richard..... Magill..... Sanders..... Groselocoe.....	2 quar..... 2 quar..... 2 quar..... 2 quar..... 2 quar.....	June 15-July 3 June 15-July 3 July 4-July 22 July 4-July 22 July 4-July 22
WYOMING: U. of Wyo., Laramie	242s Special Methods in Agricultural Education.....	Staff & Specialists.....	3 quar.....	June 19-July 1

⁸All of the courses may be taken for six weeks from June 2-July 31.

⁹Short intensive courses will also be offered.

¹⁰These courses are also offered for the period of June 27-July 15.

Stephen Moulton Babcock

(Continued from page 205)

Arts Commission. Arthur Capper of the Capper Farms Press, Topeka, Kansas, was the donor.

When Babcock passed on, H. L. Russell, Dean of the Wisconsin College of Agriculture, said in an obituary:

"Babcock was the scientist, the explorer, who loved to push back the boundaries of the unknown. He knew no fatigue if any unsolved problem arose in his pathway. The joy of conquest appealed to him as it does to the finder of some undiscovered bourne, yet he would have hated to have been forced to organize his discoveries and reduce them to formal treatment. One thing he said he would never do, and that was to write a book."

At Dr. Babcock's funeral, Dr. Glenn Frank, then President of the University of Wisconsin, said in an address:

"He pursued the most painstaking

research as if he were playing a game. He brought to his tasks that gaiety of spirit which authentic greatness can afford. His spirit never surrendered that incorrigible playfulness which so often marks men of power. He brought laughter into the laboratory, for there was about him that deceptively careless air which creative spirits have as they go about their business.

"In an age when scholars all too often hasten to publish even before they prove their findings, he was content to let his greatest work speak for itself. Perhaps the most illuminating fact of his career is that he never published so much as a word about his part in the discovery, definition, and defeat of that 'hidden hunger' from which man and beast might die while eating their fill.

"Scholar of a great university!
Servant of a great state!
Shy benefactor of mankind everywhere!
Laughing saint of science!
Being dead he yet speaks!"

Culture and Agriculture

IT HAS long been a favorite theory of mine that agriculture could be made one of the most cultural in the whole range of studies and an agriculture school the center of a very high type of culture. For has not agriculture intimate relations with chemistry and physics, with botany and zoology, with transportation and with commerce, with banking and the development of society, and with politics? Has it not indeed its aesthetic aspects, and its possible relations with the fine arts? And might it not be possible so to educate the farmer that he should be conscious of these relationships, that his daily task should relate itself in his mind on the one hand to the great world of the physical and vital forces, and on the other to the evolution of society and the trend of history and the making of a better world for children to be born in and men and women to live in?—E. L. Burton, formerly president, University of Minnesota.

A. M. FIELD

Methods

A Minnesota Plan of Individualized Learning

I. Building An Integrated Course

THOMAS W. RAINE, Teacher Education,
University of Minnesota

THE cross section or horizontal method of distributing subject matter material has been used in the Minnesota course of study in agriculture for a number of years. We are now attempting to devise and use an integrated course of study wherein the boy becomes a greater focal point of interest than formerly. The integrated course of study might be described as a bi-dimensional arrangement of subject matter. The vertical arrangement enables the student to grasp the inter-relationship of farm activities; the horizontal arrangement provides for a study sequence based upon the range of difficulty, which permits student utilization of previous experience. An integrated course of study embodies the idea of the horizontal course of study, but goes further. It emphasizes consideration of the boy as a total individual of peculiar needs, with particular likes, dislikes, habits or skills, knowledges, attitudes, and adaptabilities. A consideration of these characteristics is a part of the medium thru which this integration is achieved. Such an integrated course of study lends itself handily to individualized learning, by which the boy truly can begin in his present situation and develop himself toward that place at which he wishes to arrive. This goal is idealistic. Even fractional attainment includes the development of a worth-while and contributing member of society. Both are qualities desired in a proficient farmer.

A proficient farmer integrates his farming. Doctor Field states: "We should teach prospective farmers to farm the way that proficient farmers farm." Hence the integrated organization of subject matter material. These statements mean that altho a farm is made up of individual parts, the whole must be considered as an entity. Farmers do not raise corn one year, keep dairy cows the next, and a third year decide to raise wheat. By and large all of the farm enterprises are engaged in simultaneously. Hence the vertical arrangement in the integrated course of study. Similarly, the proficient farmer has worked into his present situation by progressing from the simpler to the more difficult skills. Hence the horizontal arrangement. The boy should



T. W. Raine

Editorial Note: This is the first installment in a series of three by Mr. Raine. In these articles he describes somewhat in detail the methods of organizing the course, directing learning, and evaluating progress which he has evolved over a period of years as a teacher of agriculture. Before joining the staff of the Department of Agricultural Education at the University of Minnesota, Mr. Raine was an instructor at Fairmont, Minnesota.

also draw from the wide, rich experiences of home life, using the experiences and influences of mother and dad. Therefore, an integrated course of study is applied to an integrated situation—the home farm of the student.

The Minnesota integrated course of study is divided into three sections, which are considered as being continuous. Broadly speaking, these sections may be considered as applying to the junior high school, the senior high school, and part-time teaching, respectively. Evening-school courses could be included. These broad sections must be made to fit into the administrative phases of high-school management, so they are divided into Agriculture I, Agriculture II, Agriculture III, Agriculture IV, and part-time work. Agriculture I is the ninth grade course, Agriculture II the tenth grade, Agriculture III the eleventh grade, and Agriculture IV is taught in the twelfth grade. We think of part-time work as a continuation, where possible, of Agriculture IV.

Agriculture I, II, III, IV

The Minnesota Agriculture I course of study is designed to give the beginning student a broad overview of American agriculture. It is a vocational, informational, and explorational course. It aims in part at giving the farm boy a comparison of the ways in which people earn a living. This means that Agriculture I is somewhat of a guidance course. Thru it a boy is brought to see the advantages and disadvantages of agriculture and the related occupations. The course serves to guide the farm boy either into or out of farming as a vocation. Each function is equally important. It is generally agreed that occupational choice must precede vocational training. If proficient farmers are to be trained, it is just as important to guide

the boy who is not fitted for farming out of practical farming as it is to train the prospective proficient farmer. Doctor Byram, Michigan, states that "A farm background can be one of the most valuable assets of rural youth today. Young men who are not cut out to be dirt farmers can, with guidance, learn about jobs in which they can capitalize on their farm experience."¹ Merritt says that eventually fifty out of each hundred will have to depend upon non-agricultural occupations for a livelihood.² The teacher of agriculture has a responsibility for each group.

Speaking graphically, Agriculture I symbolizes the large end of the funnel of instruction in agriculture. The funnel filters out those who are going into the related occupations. The small end of the funnel typifies entrance into Agriculture II.

The Agriculture II, III, and IV courses are directly concerned with developing the skills, knowledges, attitudes, and qualities needed by a proficient farmer. The teaching situations emerge from the farm practice activities, which are the learning activities of the student. The farm practice program, introduced during the freshman year, serves to prepare the student for extensive individualized study.

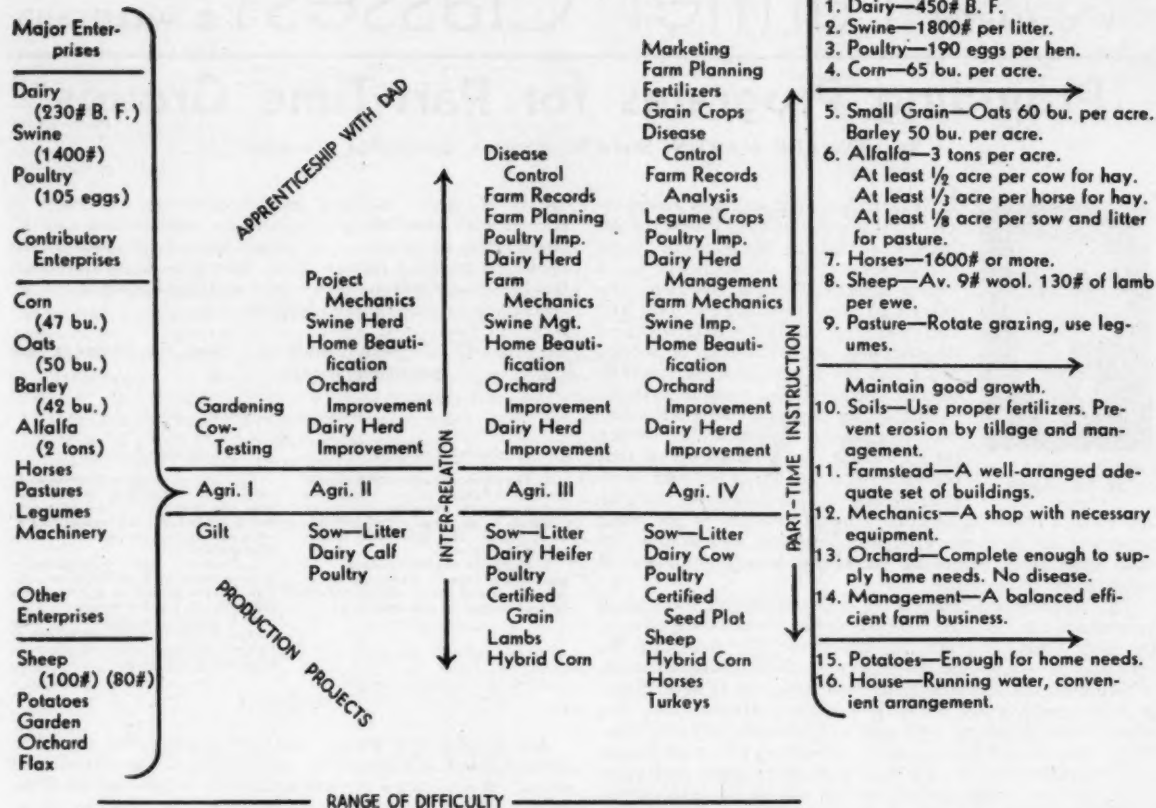
Farm Practice Work

A sophomore student has experienced one year of farm practice activities. He has had time to test his farming interests and abilities. The teacher by this time is familiar with the entire farm. He knows its strengths and weaknesses, and he knows the parental limitations, if there are any. Now the teacher and the student are in a position to formulate a long-time plan of farm practice activities. They will make a plan which will look something like the accompanying chart.

The major, contributory, and other home farm enterprises are listed. Opposite each enterprise is noted its approximate level of production. These, of course, are approximations, because most of our farms do not have accurate, complete records. Next, a careful analysis of the physical farm plant and a study of appropriate literature will enable the student to set up ultimate objectives or goals that he would like to achieve in the future, say 10 years hence. Farm management reports, current economic reports, and project reports will help to set these tentative standards. A careful study of these two differences will help to point the way toward a three-year program of activities which will comprise the student's high-school farm practice activities. Such a series is implied in the plan of activities for Ag. I, II, III, and IV, in the farm practice outline. Part-time activities are not included.

This introduces the integration. There are two types of activities: production projects, and practices which include the supplementary, improvement, and placement activities. These increase in

Suggestive Long-Time Program of Farm Practice



scope and range of difficulty as the student progresses. The offspring of the gilt which was selected as the first-year production project may next year work into the general improvement of the farm swine herd. (The boy may retain ownership of one or more individuals, or enter upon a partnership with his father.) This criss-cross shifting can work either way. The Agriculture I poultry apprenticeship project can become a second-year production project. The second-year dairy calf can shift to the apprenticeship classification in the third year, entering the dairy herd in the fourth year with some sort of co-opera-

tive agreement with Dad. This flexibility enables an adaptation to many farming types and home situations.

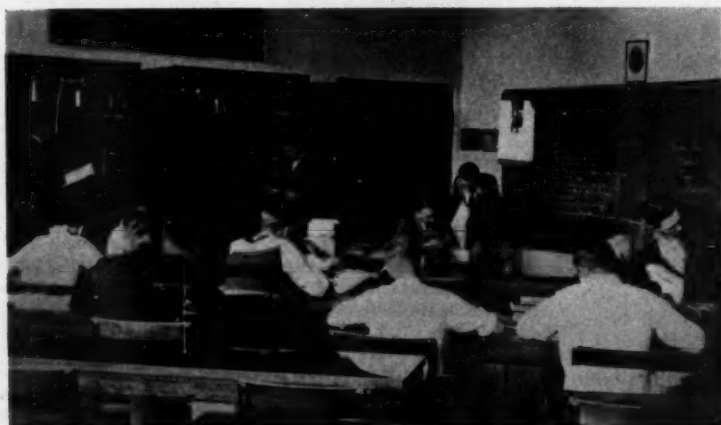
After completing one year of farm practice work, of setting up a farm practice program of this nature, and of encountering some of the difficulties of estimation, the boys are quite receptive to the idea of keeping farm records. Sophomore boys are taught how to enter the business items in the Minnesota Farm Record Book by actually entering a set of farm records and balancing them. They are expected to keep a record of their home farm business during their junior year, in the Agri-

culture III course. These records are completed by January 1st of the senior year, and the remainder of the Agriculture IV course is devoted largely to their analysis and to formulating the recommendations for the home farm on the basis of the facts found. This serves as a check on the original standards and ultimate objectives, and prepares the course of study for part-time teaching.

The accompanying picture shows a typical class organization while doing individual study. The two boys at the extreme right are discussing a common problem in swine. The boy at the book shelf and the one at the bulletin file are looking up additional information to aid them in solving a home problem they have encountered. The boy at the instructor's desk is talking over a number of solutions he has found, one of which will be selected mutually as being more applicable to his home farm than the rest.

The remainder of the boys are individually formulating approved practices to fit their home farms and farm practice plans.

1 Byram H. M. "Opportunities for the Agriculturally Trained," *Occupations: The Vocational Guidance Magazine* 12:114-121, Nov. 1938.
2 Merritt, Eugene, *The Opportunity in Agriculture for the Farm Boy*, Extension Circular No. 264, Washington, D. C., U. S. Department of Agriculture, p. 1.



A representative agriculture class, Fairmont, Minnesota, showing the students at work on individual problems

I have never seen the advantage of teaching children how to live without teaching them how to make a living.—John Callahan.

V. G. MARTIN

Farmer Classes

J. B. McCLELLAND

Providing Programs for Part-Time Groups

W. HOWARD MARTIN, State Supervision, Burlington, Vermont



W. H. Martin

EDITORIAL comment in a recent issue¹ of this publication stressed the expansion of service rendered by vocational agriculture departments as a means of strengthening the local program and consequently the State and National program. It was indicated that departments might expand in several fields, but providing systematic instruction in agriculture for more individuals—namely, farmers and young farmers—was recognized as the desirable direction for expansion. As a follow-up of that comment, it is the writer's intent to report further in this article on the plan set up as a result of his study² on the problem of providing programs for part-time groups in Vermont, and to give certain conclusions regarding ways and means employed in establishing programs.

The study was developed by (1) Studying all teachers of agriculture in Vermont—their salaries, tenure, experience, teaching loads, and activity programs; (2) analyzing the attitudes of school officials—chairmen of local school boards, superintendents and principals—and teachers of agriculture; and (3) studying 100 young men in the patronage area of a school.³ Questionnaires were used as a means of securing data. These were mailed to teachers of agriculture who were visited later by the writer. Young men were interviewed, and questionnaires for young men were filled out by the interviewer.

The study considered both the immediate and long-time phases of the problem, but only the immediate phase will be covered in this article. The plan, including statements of objectives, the need and importance of realizing them, and the ways and means of achieving them, is given in a semi-tabular form. Since developments made it possible for the author to utilize this plan in promoting programs for part-time groups, the actual ways and means employed are given to facilitate comparison with those planned. Concluding statements for each of the objectives and its series of ways and means point out the importance and need for achieving that objective, and give certain conclusions and results from experiences in establishing programs for part-time groups.

A PROPOSED AND ACTUAL PROGRAM FOR ESTABLISHING PROGRAMS FOR PART-TIME GROUPS

Objective I: To inform school officials of the objectives and purposes of programs for part-time groups.

Ways and Means

Indicated in Study

1. Local teachers of agriculture should assume this responsibility. Supervisors should co-operate when necessary.
2. The preparation and supervision of teachers of agriculture should aid the teachers to formulate clear-cut ideas concerning the fundamental objectives and purposes of the program for part-time groups.

Actually Employed

1. Teachers have handled this responsibility adequately. It was necessary, occasionally, for the supervisory staff to work directly with school authorities in securing co-operation. Circular letters have been mailed to superintendents, principals, and teachers, informing them of the programs. Group conferences of superintendents and principals have been held.
2. A one-week summer course by R. W. Gregory did much to clarify purposes and objectives.

Conclusions

Local school authorities are rightfully entitled to full acquaintance with the agricultural program, as well as participation in its direction, by virtue of being charged with the responsibility for administering the entire educational program in the local community. Teachers of agriculture must recognize this as step No. 1 in launching programs for part-time groups. Continuation of teacher in service and the avail-

ability of school facilities and supplies are important to success with part-time groups, and the appreciation and understanding of programs by school officials is basic to the operation of these factors. It is, therefore, imperative that teachers of agriculture have a good working knowledge of the objectives in part-time education.

Objective II: To demonstrate the need for programs for part-time groups.

Ways and Means

Indicated in Study

1. The teacher of agriculture should conduct a finding survey within his patronage area, using his findings as evidence to convince school officials of the need. The supervisor should stimulate this work.
2. Visitation of active programs for part-time groups by other teachers of agriculture and school officials should be encouraged by the supervisor.

Actually Employed

1. A list of suggested devices to employ in conducting finding surveys was prepared for use by teachers. The teachers who conducted surveys were more successful than those who did not.
2. Teachers and administrators were urged to visit part-time schools.
3. Results of finding surveys were presented to administrators.
4. A panel discussion was conducted at the summer conference of teachers of agriculture on planning programs to include part-time schools.

Conclusions

Recognition of a definite need for programs for part-time groups within a community by teachers of agriculture and school officials must precede action. It is believed from results obtained that it is more important for the teacher to demonstrate the need to himself than to others. The superintendents and principals were interested in groups and programs in their own areas, but did not generally accept invitations to visit other programs. However, those who did were impressed with the opportunities. Evidently, the need was demonstrated conclusively, if judgment be based on inquiries of superintendents and principals who were interviewing teachers to fill vacancies in the spring of 1938, since they all questioned the candidates on their intentions and abilities for work with out-of-school groups.

Objective III: To determine the number and characteristics of the young men of the part-time group in the patronage area of all high schools maintaining departments of vocational agriculture.

Ways and Means

Indicated in Study

1. The supervisor should encourage teachers to study the human resources of his area by making population surveys.
2. The development of a form for surveying part-time groups is a possibility that the supervisor should not overlook.
3. Form 745, issued by the Department of Interior, Office of Education, should be used extensively.
4. Guidance and education of teachers in methods of surveying should be a supervisory function.

Actually Employed

1. A form for surveying part-time group members was developed by a group of teachers and is in use throughout the state.
2. Form 745 was adapted for use throughout the state for all-day students and in a few departments for part-time students.
3. Teachers were assisted by the supervisor in surveying members of the part-time group.
4. Teachers who did not conduct a part-time school have made a finding survey in the area.

Conclusions

The teachers of agriculture should analyze the characteristics and opportunities of part-time students thru use of the survey. Results have indicated that this detailed survey had best be taken after the group has been organized. However, the teacher must have a good general knowledge prior to this time as a basis for selecting course content. Complete population surveys are desirable, but teachers have yet to realize their importance or become educated in the techniques of making the same. Teachers should employ form 745 or a similar one to keep records on progress made by part-time students in becoming established in farming.

Objective IV: To gradually increase the tenure of teachers of agriculture.

Ways and Means

Indicated in Study

1. Teachers of agriculture, by conducting programs for part-time groups, should derive more personal satisfaction from the job, as well as become more valuable men thru rendering additional services.
2. Advisory boards, composed of local farmers representing towns in the area, may be established.

Actually Employed

1. Teachers indicated greater satisfaction from working with part-time groups than with all-day groups. Sixty-five percent of the teachers of vocational agriculture conducted either a part-time or an evening school.
2. Teachers were encouraged to plan to serve a community at least five years.

Conclusions

Only two established departments in Vermont were staffed with new teachers in 1938, but it is difficult to trace the causes for this small turnover with certainty. Beginning teachers have been successful in organizing and conducting part-time schools, but, in general, they can not be expected to achieve the results that would be possible with the benefit of a year of experience in a given community. Therefore, it appears desirable to continue to work for a longer tenure than existed at the time of the study,⁴ in order that teachers may have the time to study the farming opportunities of the area and conduct a constructive program of more than one or two years' duration.

Objective V: To gradually increase compensation of teachers of agriculture.

Ways and Means

Indicated in Study

1. Salary increases may result from increasing services rendered, that is, conducting farmer schools.
2. A certain proportion of the expense for maintaining vocational education of the secondary level should be assumed by the state.
3. Teachers should keep accurate records of mileage traveled, using these figures as evidence of need.

Actually Employed

1. Teachers were paid additional salaries from unmatched Federal funds for conducting approved part-time and evening schools.
2. Teachers kept and submitted accurate records of travel, monthly, which were signed by the school officer. A part of the teacher's mileage was also paid from unmatched funds.

Conclusions

Teacher salary and tenure are closely related. Increases in salaries probably tend to increase tenure. Even tho working with farmer groups is regarded as a normal part of the teachers' regular program, they have been paid additional money for the work. This has been a factor in stimulating programs, but not the sole factor. It appears unlikely that funds will be available to pay teachers in 1938-39, due to the increase in the number of departments, but more programs are now (November 1, 1938) in operation than were conducted last year. Over 50 percent of the teachers who conducted programs for part-time groups last year received increases in salaries, notwithstanding extra money received for part-time work.

Objective VI: To gradually diminish the coaching duties of teachers of agriculture.

Ways and Means

Indicated in Study

1. Decrease may be effected by building up a policy of not permitting new teachers or teachers in new departments to coach.
2. Pro-rating of Federal aid to departments in which the teacher of agriculture also serves as a coach of a major sport.

Actually Employed

1. No new departments were established in 1938 in which the teacher served as a coach.
2. Student teachers with coaching abilities were urged to look on vocational agriculture as a full-time job, in and of itself.

Conclusions

Teachers of agriculture should always be ready and willing to co-operate in school activities, but should not do so to the detriment of their own programs in agriculture. There is a tendency to equalize total teacher load between teachers in any high school; hence, teachers of agriculture must assume a full-size program of vocational activities or be required to assume non-vocational activities. In 1938, only five of the 33 teachers of vocational agriculture were serving as coaches, or 15 percent, as compared with 1936, when over 50 percent of the teachers (12 out of 23) were engaged in coaching.

Objective VII: To educate teachers in methods of surveying and organizing a part-time group.

Ways and Means

Indicated in Study

1. Courses in summer school should be utilized as a means of educating teachers.
2. A special program in supervision should be adopted to provide individual help to teachers.
3. Teachers of agriculture might plan and conduct a survey co-operatively.

Actually Employed

1. (See Objective I.) During a summer-school course, a group of teachers planned and surveyed prospective young farmers in two areas.
2. An assistant supervisor, in charge of part-time and evening schools, was added to the supervisory staff.
3. Individual conferences with teachers were held by the supervisor to analyze needs.

Conclusions

It is believed that the importance of the survey may have been over-emphasized by setting it up as a separate objective, but the importance of teacher-education cannot be over-emphasized. The survey of young farmers is important, but should be added to gradually. A summary of all surveys made in the state has been prepared. It is expected that this will prove valuable in future years as an indication of trends and progress.

Objective VIII: To aid teachers in the development of programs appropriate to the need of the group and in making adjustments of scheduled duties which may prevent proper developments.

Ways and Means

Indicated in Study

1. Special summer-school work for teachers in service should be planned.
2. Supervisory assistance should be provided for teachers in developing and planning programs.
3. Programs, in general, should be planned to help the young men become established in farming.
4. Individual supervision of teachers should be employed in order that all may conduct some type of program for part-time groups.
5. A full program for the part-time group should include follow-up activities, group organization, and systematic instruction on the unit basis.

Actually Employed

1. (See Objective I.) An outline of procedure to follow in organizing and conducting part-time schools was developed by the teachers in the class and sent to all teachers in the state.
2. Suggestive programs were developed and provided for teachers' use.
3. Teachers submitted proposed programs for criticism before putting them into operation.
4. One hundred percent of the approved programs for part-time groups were developed about the theme of establishment.
5. Special attention was given to problems of part-time schools in the monthly professional magazine published by the State Association of Teachers of Agriculture.
6. Part-time schools organized early in the year as demonstration centers aided in indicating methods, appropriate content, and opportunity.
7. Fifteen approved programs were conducted. Follow-up activities were carried on. Thirteen of the 15 groups were organized as Young Farmer Associations.
8. A state meeting of teachers of part-time schools and delegates from Young Farmer organizations was held.

Conclusions

Teachers lacking any education or experience in conducting part-time schools are probably showing good judgment in not conducting them. In-service training and supervision of an intensive and individual type appears to be an effective means whereby such teachers can, with reasonable certainty of success, be prepared to carry on the desired types of work with farmer groups. Establishment in farming, in most cases, should be the central theme of any program the first year, and probably the emphasis should be continued to a lesser degree thruout the four to six years during which the group may be expected to remain more or less constant, with more time being spent in studying specific enterprises and planning the supervised farming programs.

With growth in the vocational program, teachers should be relieved of non-vocational activities. Without adequate time and energy for working with farmer groups, teachers cannot, in general, be expected to function efficiently. It is often a problem of selection. That is, the individual teacher loses sight of his main function—serving rural people—and assumes a disproportionate number of non-vocational activities. The vocational program had best be complete before other activities are undertaken.

A summation of this article appears unnecessary, in view of conclusions already stated. In lieu of a conclusion, the author has chosen to indicate briefly some specific practices to be followed by teachers in establishing and conducting programs in 1938-39, and some problems needing additional study.

(Continued on page 217)

L. B. POLLOM

Farm Mechanics

Teaching Opportunities During the Supervision of Farm Shop Classes

W. F. STEWART, Teacher Education,
Columbus, Ohio

WHAT do you do while your boys are at work in farm shop? Did it ever occur to you that this is an unusual opportunity to teach? Ever try it? Let's look into the possibilities.

What are we driving at in our farm shop teaching? Manipulative skills and abilities are the most obvious goals. Our boys must have some conception of an A-No. 1 job. This we call an *ideal*, whether it is an ideal crown splice, an ideal edge on a plane, an ideal job in constructing a nail box, or an ideal farm shop at home, equipped and in use. Then, I'd say we also want them to have an *understanding* of the procedure in each skill to the extent that they know the "whys" and "why not's" of each step. Other desired outcomes may be mentioned, such as a greater *interest* in farm shop skills, desirable *attitudes* toward shop work, and an appreciation of the skills developed. The first point of emphasis is that there are these several objectives and not merely the objectives first mentioned—the development of manipulative skills.

Before reviewing the procedure in the development of a manipulative skill, let us really get in mind the meaning of "skill," a "skilled workman," and such related terms. Incidentally, we, of course, want our students also to have some such concept before they proceed very far in the acquisition of skills. What is meant by "skill," by a "skilled workman," etc.? It seems to be made up of the following: First, a high quality product is obtained; second, the labor or physical action is effective, meaning that there is no waste motion; third, there is economy in the use of material—no uncalled-for waste; fourth, the quality product is turned out in a reasonable minimum of time. Check your own thinking with this analysis. Is that about what skilled operation includes? If so, we can say that a skilled workman obtains a high quality product without wasted effort or material within a reasonable time. If this definition is correct and is kept in mind, it will be noticed that many improvements in shop operations are to the end that these conditions may be met; that is, that skill may be acquired.

Usually the first step in the development of shop skills is a demonstration of the skill given by the teacher to the entire class and accompanied at the several steps by appropriate questions. At this point it might be well to review



W. F. Stewart

the mimeographed article, "Questioning During a Demonstration to Encourage Thinking Unto Understanding." By way of a summary of that article, and for later reference in this discussion, seven types of questions found appropriate to ask are:

1. Ask why we do the step this (the right) way.
2. Ask why not do the step some different way.
3. Ask for the meanings of new words used.
4. Ask questions of judgment or reasoning within the experience of the class.
5. Ask for a recognition of the steps requiring special precautions.
6. Ask for a description of the ideal.
7. Ask questions that will stimulate thinking towards improvement or progress.

LET us assume now that the demonstration of the ability has been completed—probably demonstrations of several abilities—and that the boys in shop are working, each acquiring a definite skill. All of them, however, probably are not working on the same skill. While they are at work, you, in supervising their work, move around among them. Again the question is raised, "What do you do while supervising your boys at their work?"

First, do you check on the correct choice of materials? If lumber is being used, is it the right piece of lumber as regards kind, thickness, grain and knots? If nails are being used, are they of the right size? Are nails being used where screws are preferred? Second, do you check on the correct choice of tools? Sometimes cross-cut saws are used for rip saws, hammers for mallets, large files where small ones would be better, a rasp where a block plane would be more appropriate. Third, with proper tools and materials in use, do you check on the boy's stance or position while at work? When planing, does he stand well balanced so that he can swing into the work stroke of the plane? When sawing the end off a board, does he stand in proper relationship to the saw horse and the short end? In planing, does he push or lead it as he would a calf by the horns? Fourth, is he performing the operations as demonstrated in proper sequence and form; that is, is he acquiring skill by doing the job correctly? And if he isn't, then how might you proceed? A variety of remedies may be necessary under a variety of conditions. The following are suggestions, graded somewhat from the less difficult to the more difficult:

1. Just ask the question, "Is that the right way, Frank?"
2. "Try holding your chisel this (the

right) way, Harry."

3. "Think a minute, Fred. Is that the way I demonstrated that step?"

4. "I would think that way would become very tiresome, Francis. Check on yourself and see if you can improve your procedure."

5. "What will be the effect if you keep that up?"

6. "I just saw Bill working on this step a while ago. Let's go over and see how he does it."

7. "Fred has finished this job and I believe got better results. Let's ask him to come over here. You watch him and try to see where you can improve."

8. "Just a minute, class. Several of you are having trouble on one or two points in this practice. Will all of you come over here while I demonstrate a few steps again? Let's look for the points you need to be careful about."

OTHER questions will suggest themselves as appropriate to lead the boy to the right procedure. This probably is the step most frequently practiced by teachers, but even so it is applied altogether too seldom in shop supervision. Our supervisors as visitors report seeing pupils tugging away at their jobs with no correction from the teacher and apparently no awareness by the teacher of the improper procedures being followed. Fifth, when a boy is doing his work well for his particular stage of development, do you give him that "universal elixir"—a word of praise? This need not necessarily be reserved for the boy who is best at the job. A boy, average or less, deserves praise as surely as a superior boy, and quite often that praise, if given, will bring greater returns in the classroom. Sixth, can you say something to increase the boy's interest in shop skills and in improving his abilities? It may be a connection between the shop skill he is practicing and an opportunity to make money, or an opportunity to use it to advantage at home, or to excel in that skill over his classmates, or to have his completed projects exhibited at the school, county, or state fair. A mention of these things will often increase a boy's interest and help his attitude. Seventh, we said that our questions during the demonstration were to induce thinking and to bring about understanding. Was that one asking of the questions sufficient? Hardly. Do you repeat at least the most important of the "why" and "why not" questions to each boy as he is working on a particular skill? "Why are you doing that this way, Frank?" "Why not do it some other way?" Either of these questions asked of each pupil concerning the several important steps of each skill would, in itself, improve immeasurably the effectiveness of shop teaching, particularly in the direction of a highly desired goal, a better understanding. Eighth, what do you say to enhance a boy's vision of the possibilities of shop work in his own life, probably in the improvement of his home shop and in the wider use that he can make of it? What do you suppose a teacher

meant when he stopped at a boy's desk and said, "William, if you had two dollars with which to buy a tool for your home farm shop, what would be the next tool you would buy?" and then walked on? Do you suppose the fact that "It started him thinking" ever brings results? You would be surprised. Have you ever given a boy a suggestion of something that he might do to make the best better—a better arranged shop, a better equipped shop, a better allotment of time for shop work at home? Boys who have been reared in a "shop-less" environment may not begin to see the possibilities that you, as a shop teacher, see. Help enlarge their vision by an occasional suggestion.

OCCASIONALLY it is well to introduce practice in judgment either by comparison or by scoring—which in reality means comparing with an ideal. We may assume, for instance, that we have before us a board in which four nails have been driven with different degrees of "correctness," or four or five crown splices which have been completed, or four or five jobs of soldering, or of making nail boxes, or sewing harness. A score or more of such situations will arise during the year. The teaching procedure may take place with the boys individually or with several or all of the boys in a common discussion. If the procedure is that of asking each boy to score each of the five or so jobs, the scoring would be followed by questioning each boy as to his reasons for scoring each product high, medium, or low, as the case might be. This can be followed, particularly in the case of errors or improper products, by asking for the prevention, the remedy, or the way of improving. For example, one crown splice is scored low because one strand bulges, or the taper is irregular, or the crown is loose—not firm. The questions would be, "How would you prevent a bulge in the crown?" "What should you do to secure a firm crown?" "What is the cause of the irregular taper?" "How would you remove it?", etc. Such questions stress the ideal; they stress the correct procedure; they stress critical analysis of a finished product; they stress causes of mistakes and of good results and the effects of right and wrong procedure—a most impressive experience in effecting understanding and judgment. If a teacher wishes to lay down a rule of good teaching, it might well be, "Provide one judging experience of this nature in the class each week."

These, then, are a few of the teaching opportunities in the supervision of farm shop that will round out the educational experience of each boy and make the teaching more complete, because in the questions that have been asked or suggested are found teaching devices to secure not merely the desired manipulative skill or ability, but also a higher ideal, a better understanding, a greater appreciation of the skills in particular and farm shop work in general. When these are achieved, we have approached a well-rounded education—not just the acquisition of manipulative skills.

What do you do while supervising your boys at their work in farm shop? May we each answer, "I try to give my boys an all-round, complete education insofar as the opportunities there afforded permit."

First Part-Time Class in Farm Mechanics Completed in Hawaii Last Year

G. C. COOK*, Teacher Education,
University of Hawaii

AS A part of the cadet fifth-year agricultural training program, a part-time class in farm mechanics was organized at Kaaawa School. This was the first part-time class of its kind to be organized in the territory.

The class of 18 members was conducted by J. K. Sakai, fifth-year trainee in vocational agriculture, under the supervision of the teacher-training department and the co-operation of the Department of Public Instruction. Fifth-year trainees attended the organization meeting and a number of other meetings to receive training in the organizing and conducting of part-time classes. These meetings proved very valuable in giving trainees participation, and a better appreciation of the aims and values in part-time instruction.

A total of 20 meetings of two hours each were held over a period of 20 weeks. The meetings were held from 7:15 to 9:15 in the evening, which was the most convenient time for the group. The students ranged between 16 and 23 years of age, and comprised about all of the out-of-school farm boys in the com-



Hawaii's First Part-Time Class

munity. Considerable interest was shown in the course and all of the members but one attended 70 percent or more of the meetings.

Since most of the students had very little previous training in shop work, it was deemed advisable to give them some classroom work in the classification, use, and care of tools before going into the shop for practices. The first few meetings were devoted to fundamental principles in woodworking and ropework.

Some of the lessons were as follows:

1. Determining the importance of farm mechanics work
2. Classifying lumber
3. Selecting and caring for lumber
4. Selecting and using nails
5. Selecting and using screws
6. Selecting and using bolts
7. Selecting and using hinges and some other types of hardware
8. Studying tool classification, cleaning tools, and using planes
9. Using squares and marking tools
10. Classifying and using saws
11. Classifying and using chisels and boring tools
12. Using files, hammers, and other tools
13. Sharpening chisels and plane blades
14. Selecting and caring for rope
15. Using and handling rope, whipping, knots, and hitches

16. Splicing rope

Upon completion of this series of lessons, the class was given practice in developing farm-shop skills and abilities in the shop. Some of the shop projects completed were a tool cabinet, small poultry house, mash hoppers, and hog troughs. Several exercises in rope work were also completed, such as simple knot tying, mending, and splicing. A high standard of workmanship was maintained and much emphasis was placed on the correct attitudes, habits, ideals, and appreciations which a student should possess. Careful planning and systematic instruction were stressed and put into practice.

These students were given classroom work in related problems by Mr. J. Sanjumo, principal of the school, just prior to the opening of the class in farm mechanics. Some agricultural arithmetic was included in the farm mechanics course, on figuring bills of materials.

At the last meeting each student was given a certificate in recognition of the work done. The students seemed well pleased and expressed a desire to have another part-time course next year.

Each student has one or more agricultural projects in which he can put into practice much of the instruction which he received. These students will be encouraged to construct poultry houses, mash hoppers, hog troughs, and other necessary equipment in connection with their farming programs, which will be useful in helping them to become established in farming.

*Professor Cook is now a member of the Department of Education of Michigan State College at East Lansing, Michigan.

Book Reviews

Dairy Cattle Feeding and Management, by H. O. Henderson, et al., 3rd edition, 1938, 557 pp., illustrated, list price \$4.00, published by John Wiley & Sons, New York. The text deals with feeding, care, and management of dairy cattle, and is in lecture form, with references for further study included. The appendix carries 32 laboratory exercises and dairy farm problems. The author has attempted to bring together in a compact and teachable way the more important findings of investigators in the field of dairy husbandry. While the text is of college level, it should prove of value to teachers of vocational agriculture and their students, and should be helpful as a guide for practical dairymen. The first edition was by Carl W. Larson and the late Fred S. Putney.

Finding the Goal Posts, by Laurence H. Howe, Cokesbury Press, Nashville, Tenn., 140 pp., price \$1.00; inspirational addresses for youth and the leaders of youth. The author, an experienced and popular lecturer to young people, has prepared this volume with his face toward the sunrise for those whose dawn-lit countenances reflect the immeasurable courage and hope of youth. Emphatically, this is not a "lost generation." The author challenges the rising generation to a careful evaluation of the forces that confront it in this troubled modern world of ours and points the way to those things most worth while. A wealth of carefully selected quotable material is included in these well written chapters of inspiration and courage.—A.P.D.

Studies and Investigations

C. S. ANDERSON

Factors Affecting the Establishment of Departments of Vocational Agriculture

A. W. TENNEY, Teacher Education,
Gainesville, Florida

DURING the present expansion of the program in agricultural education, we are faced with the problem of properly locating new departments of vocational agriculture.

In order to better locate departments a number of states have made studies of their high schools and communities. Such a study is being made in Florida at the present time. In making a study of this nature it is essential that certain factors which affect the establishment of departments be determined. Several studies already made suggest certain factors.* The most significant factors from these studies were combined and sent to all of the state and territorial supervisors of agricultural education. They were asked to rate the factors as very important, important, and unimportant, and to suggest any other factors they believed to be worth while.

According to the opinions of the state supervisors of agricultural education there are many factors that affect the establishment of departments of vocational agriculture in the public high schools. The use of the above factors in a careful study of the communities and high schools in a state should make available facts that would enable the state supervisor to properly locate new departments.

The accompanying tables show the rating given the various items by the 39 supervisors who co-operated.



A. W. Tenney

*Coggin, James K.—Factors to Be Considered in Locating Departments of Vocational Agriculture in the High Schools of North Carolina. Unpublished master's thesis. Ithaca, New York: Library, Cornell University, 1928. (Summary of study: Mono. No. 7, Federal Board for Vocational Education, Washington, D. C.)

Fuller, John S.—Some Criteria for Establishing and Maintaining Agricultural Departments in the Secondary Schools of Arizona. Unpublished master's thesis. Tucson, Arizona: Library, University of Arizona, (Also mimeographed, State Board for Vocational Education, Phoenix, Arizona)

Gardner, Hubert M.—Should a Department of Vocational Agriculture Be Established in the High School at Dryden, New York? Master's thesis. Ithaca, New York: Library, Cornell University, 1922.

Henderson, Christopher O.—The Influence of Soil on the Effectiveness of Agriculture Teaching in Mississippi. Master's thesis. Ithaca, New York: Library, Cornell University, 1933.

Hoge, James O.—Vocational Agriculture in Southwest Virginia. Master's thesis. Blacksburg, Va: Library, Virginia Polytechnic Institute, 1931.

FACTORS, RATED BY STATE SUPERVISORS, WHICH AFFECT THE ESTABLISHMENT OF DEPARTMENTS OF VOCATIONAL AGRICULTURE IN THE PUBLIC HIGH SCHOOLS

FACTORS	Number of Supervisors Giving Each Rating		
	Very Important	Important	Unimportant
1. Population of school area.....	12	20	7
a. Urban.....	6	15	18
b. Rural.....	26	12	1
(1) Adults.....	20	18	1
(2) Young men.....	32	6	1
2. High School			
a. Enrollment			
(1) Number of boys by grades 7-12 ...	16	16	7
(2) Number of girls by grades 7-12 ...	3	9	27
(3) Number of farm boys by grades 7-12	36	2	1
(4) Total enrollment by grades 7-12 ...	7	20	12
(5) Total high school enrollment 7-12 ..	12	21	6
b. Facilities			
(1) Availability of classroom.....	26	11	2
(2) Availability of farm shop.....	23	14	2
(3) Availability of funds for purchasing:			
(a) Facilities.....	29	10	0
(b) Equipment.....	28	11	0
(c) Supplies.....	28	11	0
c. Number of teachers			
(1) Special.....	4	18	17
(2) Total.....	5	24	10
d. High school curriculum.....	7	27	5
e. Type of school			
(1) Consolidated.....	10	20	9
(2) Non-consolidated.....	3	21	15
(3) Plans for consolidation.....	10	19	10
3. Major occupations of the high-school area.	26	12	1
4. Agriculture in the area			
a. Number of farms			
(1) Part-time.....	23	13	3
(2) Full-time.....	29	9	1
(3) Total number of farms.....	29	8	2
(4) Trend in number of farms.....	22	13	4
b. Farm type most prevalent.....	15	16	8
c. Value of farm land and buildings			
(1) Total.....	8	22	9
(2) Average per farm.....	7	23	9
d. Number of			
(1) Owners.....	16	20	3
(2) Managers.....	11	24	4
(3) Tenants.....	12	22	5
e. Number of people engaged in farming ..	29	8	2
f. Number of people engaged in other agricultural occupations.....	14	15	10
5. Size of patronage area.....	18	20	1
6. Relationship of patronage area to county, parish, or township lines.....	6	18	15
7. Indebtedness of the school system			
a. Bonds.....	9	23	7
b. Salary.....	13	21	5
c. Other.....	5	24	10
8. Tax rate for schools			
a. State.....	10	16	13
b. County, parish, or township.....	9	20	10
c. Local school district.....	12	20	7
9. Housing facilities for teachers.....	2	23	14
10. Attitude of officials and patrons			
a. County, parish, or township superintendent of schools.....	32	6	1
b. High school principal.....	33	6	0
c. Members of county, parish, or township board.....	28	8	3
b. Local school trustees.....	32	5	2
e. Local patrons.....	28	11	0

Additional Factors Suggested by Supervisors

	Very Im- portant	Im- portant
1. Financial status of farmers	1	..
2. Soil types, good, poor, etc.	4	1
3. Social status of farmers	1	1
4. Type of farmers	1	..
5. Number of farm organizations	1	..
6. Attitude and support of extension	1	..
7. Possibility of farming in the future	2	..
8. Markets and marketing facilities	1	..
9. Opportunity for placement	1	..
10. Availability of teachers	3	..
11. Roads and school accessibility	1	..
12. Transportation provisions .....	..	2
13. Size of farms .....	..	1
14. Enrollment of boys grades 1-7	1	..
15. White or colored people .....	..	1
16. Cropping system .....	..	1
17. Income of farmers .....	..	2
18. Supervisory staff available .....	..	1
19. Present distribution of centers established .....	..	2
20. Allied services now available .....	..	1
21. Co-operatives in community .....	..	1
22. Attitude of agricultural organizations .....	..	1
23. Full-time teachers (part-time) .....	..	1
24. Apparent community co-operation .....	..	1
25. Rural employment status	1	..
26. Length of school term .....	..	1

Moore, John C.—A Technique for Determining the Number and Location of Departments Necessary to Give Optimum Training in Vocational Agriculture in the Shenandoah Valley, Virginia. Master's thesis. State College, Pa.: Library, Pennsylvania State College, 1933.

Weaver, William J.—A Study of Conditions in Livingston County, New York, Affecting the

Establishment of Departments of Vocational Agriculture. Master's thesis. Ithaca, New York: Library, Cornell University, 1920.

Wiseman, Clifford R.—Factors of Establishment and Discontinuance of Departments of Agriculture in Public High Schools. Doctor's thesis. Minneapolis: Library, University of Minnesota. (Also published by author, Brookings, South Dakota.)

A Rebuttal

H. G. KENESTRICK, Teacher Education,
Columbus, Ohio

IN THE February issue of *The Agricultural Education Magazine*, Mr. F. W. Lathrop replied to my article in the preceding issue in which I had challenged certain statements in his earlier article entitled "Recent Studies in Vocational Agriculture Related to the Establishment of Young Men in Farming." Certain comments are in order on his answers to the various points of criticism made in my article. Since Mr. Lathrop has summarized my points of criticism quite fairly, I shall quote each of them exactly as he has numbered and stated it, and follow with the corresponding statement of rebuttal.



H. G. Kenestrick

"1. The statement that 50 percent of former students in rural communities where departments have been established a long time are now engaged in farming is not justified by the facts." Mr. Lathrop says his statement that "studies show 50 percent of former students are in farming" is made in connection with the Hatch study and does not refer to the Gregory study. It is hard to understand what connection there is between this statement and the Hatch study. True, the statement follows in the next paragraph after the Hatch study is discussed, but the Hatch study deals with so-called *opportunities* for becoming established in farming.

The cases dealt with are *farms*, not *young men*. Mr. Lathrop's reply fails to designate specifically any studies showing a percentage as great as 50 percent. If certain studies support the claim on percentage, it would be desirable to identify them so that investigation and evaluation of the conditions under which they were conducted could be made. If reference to the study included in the Federal bulletin on "Effectiveness of Vocational Education in Agriculture" is intended, the figure in this study for percentage of former students established in farming does not substantiate his point. Even tho the figure of 42.6 percent farming in 1932 is claimed for the group who left school between 1917 and 1922, this percentage was calculated after excluding all cases where the occupation was not reported. Of a total of 1,030 sampled cases, 483 whose occupations were not reported were excluded before the percentage was calculated. Obviously this gave an incorrect picture of the actual percentage of all former students engaged in farming. It is the mobile portion of the population, not engaged in farming, that cannot be checked and classified occupationally as easily as can those who are farming.

"2. A comparison was made of young men who came from owned and rented farms in respect to the percent remaining in farming. 1934 figures were used instead of 1937 figures, or both." Mr. Lathrop admits that it would have been better to use the 1937 figures, altho he wonders whether they misled anyone except myself. The very fact that they did not mislead me was evidenced by the fact that I challenged their appropriateness. One who had not had occasion to be working with a similar study might easily have been led astray by the omission of the latter figures, especially

when later in the article the broad generalization was made that half of the former students are engaged in farming.

"3. Young men from homes not on farms number 110. Only a small number were farming in 1937. Here I used 1937 figures, was not consistent, and, even worse, showed bias." Mr. Lathrop's statement that both he and I had been mixed up at this point is entirely correct. Starting with his original statement which contained an error, as he pointed out, I failed to get the proper correction made, and my conclusion based on this error in figures was not justified. The appearance of bias was unfortunately and unfairly created by a peculiar coincidence of errors which I regret.

"4. The Gregory study does not show that increasing the number of years in agriculture courses increases the proportion of its former students who go into farming." Mr. Lathrop admits that one sentence in his article in this connection justifies criticism. It is very important to note that this was a key sentence, and therefore, the fact that it was in positive error was very serious, even tho many other statements which were not incorrect were also made. I see no need of additional statements in support of the desirability of four-year courses over two-year courses. I believe I am for the longer courses just as strongly as is Mr. Lathrop, altho for a different reason than the one he states. However, the significant point made in my criticism and substantiated by Mr. Lathrop's statement is that the Gregory study did not and could not furnish any evidence whatsoever on this point. A sound position is not strengthened by conclusions drawn from irrelevant data.

In the light of the above statements I still challenge Mr. Lathrop's original article for its omissions of relevant facts which were needed to give a *balanced* picture of the findings of the studies referred to, and for its use of conclusions which were not justified by the data. Agreeing as closely as I do with Mr. Lathrop on what I understand he would like to see accomplished in the establishment of young men in farming, it disturbs me to see the findings of scientific studies used with anything else than the greatest of care.

The importance of this last point I can best illustrate by reference to certain data from the Hatch study which Mr. Lathrop quoted in his first article. I did not refer to them in my first article, which was submitted in June 1938, because at the time of writing the article, I did not have access to the complete Hatch study. Only later when I had occasion to examine the complete study was I fully aware of the wide difference between what this study actually disclosed and what had been selected for emphasis by Mr. Lathrop when he told of 151 farming opportunities on 128 farms, and ventured to say that "many thousands of young men have left their home communities, who would not have done so had they known of existing local opportunities."

In making this tally of 151 opportunities let us note how the total was arrived at. Eleven farms for sale and four for rent would constitute opportunities only to those young men who had rather ample resources. Of the 50 operators willing to make a share agreement with

(Continued on page 218)

Future Farmers of America

The Annual Program of Activities

LESLIE NELSON, Adviser,
Brigham, Utah

IN SPITE of the fact that we stress the importance of planning in instruction and supervised practice in agriculture, the importance of an adequate plan in Future Farmer activities is frequently neglected or minimized. The Future Farmer organization presents no exception to the principle that efficiency in any organization comes thru careful planning. For the Future Farmers it is doubly important that provision be made for practice in planning. They need to identify themselves in a going farm organization now, and they will become members in an adult farmer organization in the near future.

The program of activities should be a projected plan containing specific items to be accomplished at a specific time. It is a working plan, not a set of "New Year's Resolutions." If properly made and efficiently executed, the program of activities becomes a *barometer* of accomplishments. It serves as an instrument for stimulation of activity and a check on what is being done.

In visiting chapters, I find no single item that stimulates effort and accomplishment as much as the "program of activities." Boys like to do things! Too often the only reason they are not working is because they have no guide or incentive. An annual program not only prevents this situation, but it will bring dozens of boys into active participation that otherwise would be simply "dead timber." "Use your head and save your heels" is an old saying that is closely associated with another—"Many hands make light work." Both of these statements express the idea that a good program will put everybody to work.

Too often teachers of agriculture complain that their program is too broad and that it includes too many phases of work. They point to the extensive activities of the F. F. A. as just another example of something that keeps them going long after other teachers have "turned out the lights." The *annual program* is the magic password that will untangle and make easy the intricate maze of Future Farmer activities. The advantages that come from teaching systematic procedure by actual practice cannot be over-emphasized. I have known many chapters to secure the most favored dates on the school calendar by the simple method of presenting the annual program to the principal early in the school year.

What are the essential elements in an efficient program of work? In answering



Leslie Nelson

L. R. HUMPHERYS

this question it is well to keep in mind that each chapter is an integral part of the state association and that, in turn, the state association is a part of the national organization. Therefore, in order to have a group consciousness and a basis of co-operation, the program in the local chapter should include both the items in the national and state associations as far as they are related to the total integrated program. In addition to the items in the state and national program, much of the year's activities will be local in nature. Care should be taken to see that there is balance in the program. One chapter may put most of the emphasis on recreation at the expense of the other aspects. To assist in checking balance it is well to group the activities according to natural divisions. These headings may be worked out variously. The most satisfactory major groups in our experience have been *co-operative activities, leadership activities, improved farm practice, conservation and community betterment, recreation, publicity, and scholarship*. A calendar of the major chapter events for the year will stimulate interest and develop a consciousness of what is happening.

The program of activities should be the program of the chapter and not the president's or the adviser's. To secure chapter ownership of this instrument the program should be presented to the chapter, or its duly authorized agents, for revision and approval. In its final form it should be mimeographed in quantities so that every member can have a copy. A very attractive program in the hands of each member will develop a pride and sense of responsibility which

is contagious. This program should play up prominently the F. F. A. motto, the F. F. A. creed, the names of the national, state and local officers, local committees together with their addresses. In recent years the "chapter advisory committee" has become an integral part of the chapter and the department of vocational agriculture. Therefore it should have a prominent place in planning. Copies of the program should be sent to the state president, state adviser, the district presidents, and presidents of the local chapters in the immediate area. This procedure will give the boys a chance to know what the "Joneses" are doing.

When should the annual program of work be formulated? Immediately following the election is not too soon to start the job. There are several advantages in getting an early start, even tho the program in its final form is not printed or mimeographed until after school opens in the fall. It is wise for the incoming officers to take advantage of the experience of the out-going officers and past members of committees. The program building can go forward during the summer and be in full bloom by fall. The past year's program, together with the list of accomplishments and recommendations, will be invaluable in mapping out the next year's work. Use of past annual F. F. A. reports will furnish many helpful suggestions. Old committee chairmen will give innumerable ideas about what the work of their committee should be, and how it should be carried out. Part of the responsibility of every committee is to make suggestions as to what the work of that committee should be the following year.

There are several devices which will aid in stimulating and evaluating ac-

Monthly Chart of Activity

Objective or Activity	Committee in Charge	Goal to be Reached	Date Accomplished	Degree of Participation
100% F. F. A. Dues	Finance Committee Jean Redelings, Treasurer	October 3	Sent full check on November 3	All members
Parents and Son Meeting	Social and Recreation Committee, Ray Wendel	March 15	March 15	42 parents 34 boys

Progress Chart on Objectives

Activity	Plans	Accomplishments and Suggested Changes
Hold Parent and Sons Meeting	On March 15 invite parents to attend meeting to acquaint them with activities and program. Ray Price in charge of attendance. Goal will be 100 percent participation. Kenneth Nelson responsible for program, of entertainment and talks by parents and boys.	The meeting was held as planned. We recommend next year that the boys and parents furnish most of the program and that no special speaker be imported. Be sure also that we have a faster method of serving the ice cream.

accomplishments. Two such devices are presented with the hope that they will encourage others in working out a form that will be applicable to local conditions. The "monthly chart of activity" should be a wall chart for chapter room.

A chart such as this placed in a conspicuous place in the chapter room will not only let the membership know what is to be expected but it will also put each committee on its toes to see that the activity for which it is responsible is successfully accomplished.

The "progress chart" idea can be used by committee chairmen and club officers to plan in detail the activities of the organization. When completed it becomes a valuable part of the chapter program.

In conclusion, let it be said that an annual program will be a guide and a stimulation to accomplishment. It will increase the number of members, and distribute the work among many boys. It will avoid conflicts with other school activities and teach by actual practice the advantages and methods of systematic procedure. Finally, the test of a good program is the accomplishments. This element is included in one of the F. F. A. mottoes, "Plan your work, work your plan."

How to Make Good Pictures

A 30-page illustrated booklet entitled: "How to Make Good Future Farmer Pictures" has been prepared by W. R. Sherrill, instructor in agricultural education at Texas A. and M. College. It is being distributed by the division of vocational agriculture, State Department of Education. The booklet is designed to help members of Future Farmers of America clubs in taking suitable pictures for their news stories and yearbooks. Copies may be obtained gratis by writing Mr. Sherrill, Texas A. and M. College, College Station, Texas.

Establishing Part-Time Programs

(Continued from page 211)

This study and the conclusions reached as a result of its utilization have by no means solved all the problems regarding the establishment of appropriate programs for part-time groups. However, the results have in part tended to verify and prove the findings of the study, and the value of applying the findings of a scientific study of a problem to an actual solution of that problem has been indicated.

However, with programs actually in operation, attention must be more carefully directed to the problem of conducting them. The experience in Vermont has not been over the long period of time, nor with the large number of cases as in other states; hence the practices selected as standard in Vermont may vary considerably from those in other states. In organizing and conducting programs for part-time groups in Vermont, experienced teachers have indicated that the following practices will be carried out in 1938-39:

1. Close co-operation with local school officials in planning and arranging for programs will be practiced.
2. A check survey or new finding survey will be made to locate prospective young farmers.
3. Part-time schools, in general, are to start in October or November.
4. Fifteen or more meetings for systematic instruction will be held. (Generally one meeting per week, in the evening.)
5. The meetings will be of at least two hours duration. One and one-half hours will be devoted to systematic instruction, and the remaining time will generally be devoted to organized social-recreational activities.
6. The unit course will be selected and planned by the teacher in advance. In the second year, teachers will continue to develop the establishment theme

about the teaching of a specific enterprise in which the majority of the group are established or are becoming established in farming. The primary objective will be to have each member determine his optimum method of becoming established in an agricultural vocation, and to initiate steps that he may become established.

7. The group will be organized as a Young Farmers' Association or other similar organization. The Association will have its own staff of officers and program of work, with monthly meetings thruout the year.

8. Outside speakers or specialists will be used for not more than four of the 15 unit meetings. Speakers will be contacted in advance and will be assisted in outlining their discussions.

9. All meetings will be carefully planned in advance. Member participation will be regarded as of vital importance. A system of mimeographed lesson summaries with notebooks will be generally used.

10. Definite attempts will be made thru the use of case studies, tours, and follow-ups to get members established in farming or a related agricultural occupation, either at home or away from home.

11. Several schools will operate simultaneously with one in home economics; joint social-recreational programs and some joint instructional meetings will be held.

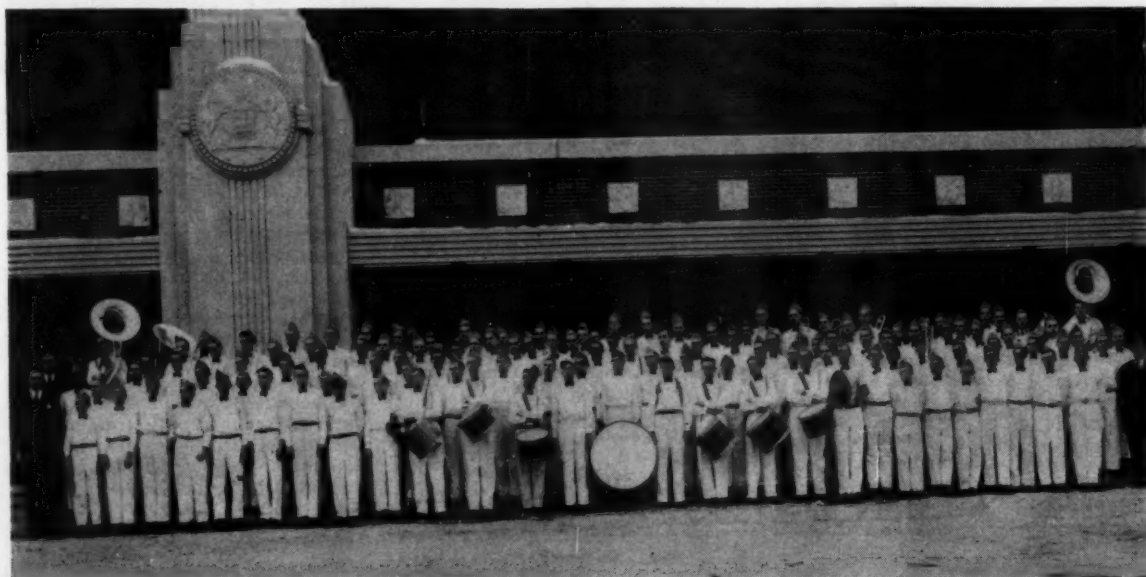
12. An optimum attendance of 12 to 20 members will be sought.

13. The Young Farmers' Association will be used to secure and maintain enrollment, as well as to help in other ways.

14. Considerable time and attention will be given to helping individual members with their establishment problems. Studies of opportunities to farm at home and of employment possibilities will be made by the teachers, in order to insure progressive establishment for an increasing number of young farmers.

15. Other part-time schools will be visited by individual teachers, and in

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The Pennsylvania Future Farmer Band this year was composed of 160 boys, representing 100 departments of vocational agriculture and 44 counties. Applications for admission to this band were received from 335 vocational boys. The band was organized and directed by Henry S. Brunner, Head of the Department of Rural Education, the Pennsylvania State College, State College, Pennsylvania

E. B. Matthew Passes

E. B. Matthew, State Director of Vocational Education, State Department of Education, died at his home, February 17. Death was due to a heart attack, following an attack several weeks before. He had been reported greatly improved, and it was thought that his recovery was certain.

Mr. Matthew was born in Virginia, Illinois, March 13, 1875. He was educated in the public schools of Kansas and graduated from the Kansas State Teachers' College at Emporia, Kansas. He received his M.S. degree from the University of Wisconsin and also studied at the Universities of Chicago, Cornell, and Louisiana.

Mr. Matthew taught in the public schools of Kansas, and was professor of agriculture in the Fort Hays, Kansas, State College. He came to Arkansas as a professor of agricultural education at the University of Arkansas in 1918. After the state acceptance of Federal aid for vocational education as provided for in the Smith-Hughes Act, and the



E. B. Matthew

inauguration of the state program in vocational education, Mr. Matthew was appointed State Supervisor of Agricultural Education in 1919. He served in this position until 1923, when he was made Director of Vocational Education. During the years Mr. Matthew served in the Division of Vocational Education the program developed from a small beginning of 11 centers with an enrollment of 132 students to the present-day program of approximately 500 centers with an enrollment well over 40,000.

Mr. Matthew was a life member of the American Vocational Association. This membership was presented to him by the members of the Arkansas Vocational Association, as a testimonial to his leadership. He served as Vice-President for agricultural education in the American Vocational Association in 1936-37. He has been a leader in farm, civic, and educational organizations in Arkansas. At the time of his death he was a member of the State Advisory Committee of the Soil Conservation Service, and also a member of the Committee on Education, Health, and Housing of the Arkansas Farm Tenancy Commission.

Statement made by Mr. D. M. Clements, Federal agent for agricultural education, Southern region:

"It was a great shock to me to learn of Mr. Matthews' death. I have lost a true friend and the South and this nation have lost a man who rendered a great contribution to vocational education. We shall miss him for many years to come and shall always remember his wise counsel in times of need. Arkansas has suffered a great loss. It will be hard for anyone to fill his place."

Statement made by Mr. T. H. Alford, State Commissioner of Education, in behalf of the members of the Arkansas State Department of Education and the vocational teachers of the State:

"Mr. Matthew was loved and respected by the professional people with whom he came in contact, not only in Arkansas, but thruout the nation. He was considered the dean of the Southern delegation of vocational directors, and his numerous friends thruout the United States will be grieved to hear of his passing."

Providing Programs

(Continued from page 217)

several instances two adjacent part-time groups will meet together for one or more meetings.

Several problems have developed in connection with the operation of programs for part-time groups. To encourage and direct a study of them appears to be a supervisory responsibility, since it should be a means of effecting continued improvement in the quality of programs. Some of the problems in Vermont which apparently need studying follow:

1. What constitutes a desirable member for a part-time group?
2. What specific activities do young men engage in during the establishment period?
3. What type of a course should be provided for young men engaged in part-time farming?
4. What subjects should young men and young women consider together?
5. What teaching devices and methods are most effective with part-time groups?
6. What, if anything, can or should be done relative to part-time groups of widely diverse interests, abilities, and opportunities?
7. What should be the type and characteristics of supervised farming programs for part-time group members?
8. What factors determine the number of meetings which an individual member attends?
9. What activities should be considered for inclusion in the Young Farmers' Association program?
10. How can a more effective guidance and placement program be inaugurated?

1 Martin, Howard—Expansion of Services Strengthens Programs. *Agricultural Education*, (August, 1, 1938), 23.

2 Martin, William Howard—An analysis of certain factors involved in the problem of providing programs for part-time groups thru Vermont departments of vocational agriculture—Thesis, Cornell University, 1937.

3 Reported in *Agricultural Education* (August, 1937), 34.

4 Median years' experience in same school, one.

A Rebuttal

(Continued from page 215)

their sons, perhaps only part would be able to effect the necessary enlargement of the farm business. But the real joker was concealed in the statement that 53 farm operators expressed a need for 86 hired men. They did not say they needed 86 more hired men than they had at the time of the study or that they wanted to replace any or all of the hired men who were then employed. Someone has well asked why, in totaling the "opportunities" in the Hatch study, the count was not increased by the total number of farm operators exclusive of those already counted on the 15 farms for sale or rent. Their jobs would be "opportunities" too, of a sort, if the holders could be dispossessed.

In the Hatch study the term "opportunity" does not seem to be clearly defined, but as used it appears to mean a job which is in existence, regardless of whether the present occupant will continue to hold it or not. There are in this country many more jobs than there are unemployed persons, yet not all of these jobs constitute genuine opportunities for the unemployed, because many persons holding these jobs will not be easily dislodged. Whether or not a given job, held by some one, constitutes an opportunity for another individual involves matters of ethics and of relative abilities. This is exactly the situation revealed by careful examination of the Hatch study. The loose use of the vaguely defined term "opportunity" is very misleading. And yet the statement of 151 "opportunities" was accepted and presented with the implication that young men had overlooked the easily attainable in their rush to the city. No reference was made to the unusual usage of the term "opportunity," a usage which made a change in the significance of the figures.

Dare we face the findings of research? Dare we undertake to summarize and present the findings of research to others unless we assume the obligation of taking positive steps to avoid wrong conclusions? The great majority of busy workers in agricultural education have little time for individual detailed examination of research studies. They are entitled to the most careful interpretation possible. Dare we risk the danger of destroying their confidence thru hasty and unbalanced conclusions not justified by all of the significant facts? In the safe use of technical data by teachers, it is being recognized more and more that the underlying conditions of the study and the exact meaning of the terms used must be understood. Otherwise the figures alone, even tho literally "correct" may be misleading. This is just as true for professional studies. Let us not draw and present conclusions that have to be withdrawn and revised when subjected to critical examination in a careful attempt to get an understanding of the full significance of the study under consideration.

With radical ideas, as with the not yet forgotten champagnes, the surest way to let them get flat is to let them get exposed to the air.—Oliver Wendell Holmes.

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